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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,608	11/12/2003	Jorn Macritz	10808/111	5868

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BRINKS HOFER GILSON & LIONE
INFINEON
PO BOX 10395
CHICAGO, IL 60610

EXAMINER

MOFFAT, JONATHAN

ART UNIT	PAPER NUMBER
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2863

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09/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/706,608

Applicant(s)

MAERITZ, JORN

Examiner

Jonathan Moffat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendments, filed 7/16/2007, are accepted and appreciated by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitefield (US pat 6512985) in view of Bone (US pat 6647309).

With respect to claim 1, Whitefield discloses performing an analysis using values of at least one process parameter of a manufacturing process of a plurality of physical objects (column 1, lines 27-30); determining that at least one physical object of the plurality of physical objects does not satisfy a prescribed selection criterion (column 1, lines 45-49); marking the at least one physical object in such a way that the at least one marked physical object must be sent for a special measurement (column 1, lines 62-64); and removing the at least one marked physical object from the manufacturing process (column 1, lines 64-66).

With respect to claim 2, Whitefield discloses that the physical object is a wafer (column 1, line 21).

With respect to claim 3, Whitefield discloses that the analysis is a statistical analysis (column 1, lines 39-40).

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With respect to claim 4, Whitefield discloses that the values of the at least one process parameter are measured when the plurality of physical objects is being manufactured (column 1, lines 11-13).

With respect to claim 5, Whitefield discloses sending the at least one marked physical object for a special measurement (column 1, lines 64-66).

With respect to claim 6, Whitefield discloses that the special measurement is a measurement for checking the quality of the at least one marked physical object (column 1, lines 64-66).

With respect to claim 7, Whitefield discloses continuing the manufacturing process for any of the plurality of physical objects not marked as failing the prescribed selection criterion (see Ref. 22).

With respect to claim 8, Whitefield discloses that the selection criterion is a quality characteristic of the manufacturing process (column 1, lines 16-20).

With respect to claim 9, Whitefield discloses that the selection criterion is not satisfied if a value of the at least one process parameter goes above or below a prescribed limit value (column 1, lines 50-55).

With respect to claim 10, Whitefield discloses performing an analysis using values of at least one process parameter of the manufacturing process of the plurality of physical objects (column 1, lines 27-30); marking at least one physical object when, as a result of the analysis, the at least one physical object does not satisfy a prescribed selection criterion (column 1, lines 62-64); removing the at least one marked physical object from the manufacturing process (column

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1, lines 64-66); and sending the at least one marked physical object for special treatments (column 1, lines 64-66).

With respect to claim 11, Whitefield discloses performing analysis using values of at least one process parameter of the manufacturing process of the plurality of physical objects (column 1, lines 27-30); marking at least one physical object when, as a result of the analysis, the at least one physical object does not satisfy a prescribed selection criterion (column 1, lines 62-64); removing the at least one marked physical object from the manufacturing process (column 1, lines 64-66); and sending the at least one marked physical object for special treatments (column 1, lines 64-66).

With respect to 12, Whitefield discloses performing analysis using values of at least one process parameter of the manufacturing process of the plurality of physical objects (column 1, lines 27-30); marking at least one physical object when, as a result of the analysis, the at least one physical object does not satisfy a prescribed selection criterion (column 1, lines 62-64); removing the at least one marked physical object from the manufacturing process (column 1, lines 64-66); and sending the at least one marked physical object for special treatments (column 1, lines 64-66).

With respect to claim 1, Whitefield et al. does not discuss performing the process without human intervention.

It would have been obvious to one skilled in the art at the time of the invention to automate the method. Merely using a computer to automate a known process does not by itself impart nonobviousness to the invention. See *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194

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(CCPA 1958). See also *Dann v. Johnston*, 425 U.S. 219, 227-30, 189 USPQ 257, 261 (1976).

See IV [PEP 2106. Despite this, the examiner presents the following teaching reference.

Bone teaches, with respect to claim 1, measuring “process parameter values” (column 6 lines 10- 43; including stray gasses, environmental data etc) while the plurality of physical objects is being manufactured (column 6 lines 10-43) by an automated system (Fig 3).

It would have been obvious to one of ordinary skill in the art to modify the method and apparatus of Whitefield by additionally monitoring the parameters of the machinery itself and to perform automated, “during production” monitoring. As previously stated, automated manufacture and monitoring are obvious and well known in the prior art for reasons of cost, sterility, and reliability. Further, one of ordinary skill in the art would understand to also take interest in the behavior of the manufacturing equipment itself and understand that it has an effect on the finished product (Bone column 1 lines 23-57).

In combination, the wafers AND the manufacturing equipment parameters may be monitored and wafers may be marked for rework, additional measurements, and/or disposal based upon a fault in either set of conditions.

2.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitefield in view of Takanabe (US pat 6606574) and Bone (US pat 6647309).

With respect to claim 13, Whitefield discloses performing an analysis using values of at least one process parameter of a manufacturing process of a plurality of physical objects (column 1, lines 27-30); determining that at least one physical object of the plurality of physical objects does not satisfy a prescribed selection criterion (column 1, lines 45-49); marking the at least one physical object in such a way that the at least one marked physical object must be sent for a special measurement (column 1, lines 62-64); and removing the at least one marked physical object from the manufacturing process (column 1, lines 64-66).

With respect to claim 14, Whitefield discloses performing an analysis using values of at least one process parameter of the manufacturing process of the plurality of physical objects (column 1, lines 27-30); marking at least one physical object when as a result of the analysis, the at least one physical object does not satisfy a prescribed selection criterion (column 1, lines 62-64); removing the at least one marked physical object form the manufacturing process (column 1, lines 64-66); and sending the at least one marked physical object for special treatments (column 1, lines 64-66).

With respect to claim 15, Whitefield discloses performing an analysis using values of at least one process parameter of the manufacturing process of the plurality of physical objects (column 1, lines 27-30); marking at least one physical object when, as a result of the analysis, the at least one physical object does not satisfy a prescribed selection criterion (column 1, lines 62-64); removing the at least one marked physical object form the manufacturing process (column

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1, lines 64-66); and sending the at least one marked physical object for special treatments (column 1, lines 64-66).

With respect to claim 16, Whitefield discloses performing an analysis using values of at least one process parameter of the manufacturing process of the plurality of physical objects (column 1, lines 27-30); marking at least one physical object when, as a result of the analysis, the at least one physical object does not satisfy a prescribed selection criterion (column 1, lines 62-64); removing the at least one marked physical object from the manufacturing process (column 1, lines 64-66); and sending the at least one marked physical object for special treatments (column 1, lines 64-66).

With respect to claims 13-16, Whitefield fails to disclose preventing values associated with the at least one marked physical object from affecting an average product quality of the plurality of physical objects.

Takanabe teaches, with respect to claims 13-16, performing quality control analysis early in production to take measures to assure that the average quality of a product does not fall below a limit (column 8, lines 9-20). It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Whitefield et al. with the teachings of Takanabe to remove products that would affect the average product quality. The motivation for making this combination would be to have a higher output by not declaring entire lots defective, but by removing defective wafers earlier (Takanabe, column 8, lines 1-20).

Bone teaches, with respect to claims 13-16, measuring "process parameter values" (column 6 lines 10- 43; including stray gasses, environmental data etc) while the plurality of physical objects is being manufactured (column 6 lines 10-43) by an automated system (Fig 3).

It would have been obvious to one of ordinary skill in the art to modify the method and apparatus of Whitefield by additionally monitoring the parameters of the machinery itself and to perform automated, “during production” monitoring. As previously stated, automated manufacture and monitoring are obvious and well known in the prior art for reasons of cost, sterility, and reliability. Further, one of ordinary skill in the art would understand to also take interest in the behavior of the manufacturing equipment itself and understand that it has an effect on the finished product (Bone column 1 lines 23-57).

In combination, the wafers AND the manufacturing equipment parameters may be monitored and wafers may be marked for rework, additional measurements, and/or disposal based upon a fault in either set of conditions.

Response to Arguments

Applicant's arguments filed 7/16/2007 have been fully considered but they are not persuasive.

On pages 7-8 of the response, the applicant argues that automation of a process is not obvious to those of ordinary skill in the art. The examiner respectfully disagrees and maintains that such modification requires no more than routine skill in the art of wafer fabrication. In order to show the commonality of such a feature, the examiner has relied upon an additional reference, Bone, above. The applicant further argues that the language “evaluation unit” cannot be read to include an operator maintaining a piece of machinery. The examiner respectfully disagrees especially given the arguments from the previous office action highlighting the assertion that the language of Whitefield does not exclude an “operator maintained” automated machinery. “unit” is sufficiently broad to include a human worker in cooperation with electronics.

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On pages 8-9 of the response, the applicant argues that the “process parameters” of the claims are not equivalent to the parameters monitored by Whitefield. Firstly, the examiner reminds the applicant that although the specification is relied upon for clarification, its limitations cannot be read into the language of the claims. The examiner maintains that “process parameters” is sufficiently broad (even given the clarification found in the specification) to encompass values which arise AS A DIRECT RESULT OF the operation of the machinery (in this case, the size, location, and presence of dust on a wafer etc.) However, if the applicant intends to limit “process parameters” to one of the listed values from paragraph 0011, the applicant is advised to amend the claims.

The above discussion, however, is ultimately moot as the examiner now relies upon reference Bone to teach such parameters as applicant has highlighted as obvious in the art.

The applicant finally argues, on page 9 of the response, that automation of processes is neither well known nor commonly employed in the wafer fabrication art. The applicant kindly requested that the examiner cite support for assertions to the contrary. The examiner reminds the applicant that such support was cited on page 7 of the office action dated 2/20/2007 (Bone and Takanabe) as evidence that automation is already known.

The above discussion, however, is ultimately moot as the examiner now relies upon reference Bone to teach automation as obvious in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Moffat whose telephone number is (571) 272-2255.

The examiner can normally be reached on Mon-Fri, from 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

9/14/07

JM *Jon*

John Barlow
John Barlow
Supervisory Patent Examiner
Technology Center 2800